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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/803,310	03/18/2004	Yuezhong Meng	1238.70071	5778
24978	7590	06/12/2007		
GREER, BURNS & CRAIN 300 S WACKER DR 25TH FLOOR CHICAGO, IL 60606			EXAMINER MCDONOUGH, JAMES E	
			ART UNIT 1755	PAPER NUMBER
			MAIL DATE 06/12/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/803,310

Applicant(s)

MENG ET AL.

Examiner

James E. McDonough

Art Unit

1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 April 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 8-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

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### **DETAILED ACTION**

Newly submitted claims 8-14 directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: claims 8-14 are drawn to a method of polymerization, while claims 1-7 are drawn to a catalyst and method of making.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 8-14 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Applicants arguments submitted 4/19/2007 are considered moot in light of the withdrawal of the old rejection and the submission of a new rejection.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al. (USP 6,593,267) in view of Alexandre et al. (WO 99/47598).

Regarding claims 1, 3, and 4 Kuo et al. teaches a catalyst system comprising a solid support such as montmorillonite and a carboxylate metal salt such as zinc (column 13, lines 23-49; column 14, line 55 to column 15, line 14; column 15, lines 50-59, column 16, lines 13-21; and column 17, lines 54-56).

Although, Kuo et al. lacks disclosure that the catalyst is capable of copolymerizing carbon dioxide and epoxides, or that the zinc carboxylate is intercalated within the layered matrix. However, polymerizing carbon dioxide with epoxides is an intended use and **does not** affect the patentability of a composition and because Alexandre et al. teaches that mica type silicates can be modified by treatment with ion exchange of alkali or alkaline earth metal ions, and that this modification step renders the normally hydrophilic layers organophilic, and increases the interlayer spacing between adjacent silicate layers, which, in turn enhance the dispersability of the particles in the matrix (page 1, lines 10-20) and allow the catalyst to penetrate into the support and not be just on the surface, it would have been prima facie obvious to someone of ordinary skill in the art at the time the invention was made to modify the teachings of Kuo et al. by intercalating the catalyst into the support, as suggested by Alexandre et al..

Regarding claim 2 Kuo et al. teaches that the carboxylate metal salt is used in an amount equal to or greater than 4 wt. % based on the weight of the polymerization system (column 30, lines 1-5), since the amount of metal salt can be greater than 4% based on the weight of the total composition, the amount of metal salt from the salt support combination would necessarily be greater than 4% because there are other ingredients present. An amount of 5% encompasses the ratio range from 1:1 to 1:20.

Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuo et al. (USP 6,593,267) in view of Alexandre et al. (WO 99/47598) as applied to claims 1-4 above, and further in view of Lewis et al. (USP 4,510,257).

Although, both Kuo et al. and Alexandre et al. fail to disclose that the intercalated matrix is calcined, they do disclose the rest of the limitations of the claim, however, because Lewis et al. teaches that at times the intercalated clays are used as such after removal of solvent, but more frequently the intercalated clay is subsequently calcined in an oxidizing atmosphere from 400-800 °C (column 8, lines 18-24), and it is well known that calcining a silica matrix will lock the matrix into the form after calcining, it would have been prima facie obvious to someone of ordinary skill in the art at the time the invention was made to modify the teachings of Kuo et al. and Alexandre et al. by calcining the intercalated matrix, as suggested by Lewis et al.

Regarding claim 6 Kuo et al teaches using water as a polar solvent (column 1, lines 39-47).

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Regarding claim 7 Kuo et al. teaches using a cyclic aliphatic or aromatic solvent such as toluene (column 18, lines 18-44).

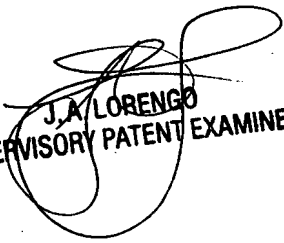
### Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James E. McDonough whose telephone number is (571)272-6398. The examiner can normally be reached on 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on (571)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JEM 6/6/2007

  
J. A. LORENCO  
SUPERVISORY PATENT EXAMINER